UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,464	01/13/2004	Miguel Peeters	1875.3880002	9924

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STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER
THOMPSON, JR, OTIS L

ART UNIT	PAPER NUMBER
2619	

MAIL DATE	DELIVERY MODE
09/30/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	Application No.	Applicant(s)
	10/755,464	PEETERS ET AL.
	Examiner	Art Unit
	OTIS L. THOMPSON, JR	2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2008*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-7,13-16 and 19-29* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) *1,2,5-7,13 and 19-29* is/are allowed.
6)☒ Claim(s) *14-16* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20080916

Response to Arguments

1.   Applicant's arguments, filed July 11, 2008, with respect to the rejection of claims

1, 2, 5-7, 13, and 19-29 have been fully considered and are persuasive. The rejection

of claims 1, 2, 5-7, 13, and 19-29 has been withdrawn.

2.   Applicant's arguments, filed July 11, 2008, with respect to the objection of claims

1, 19, and 26 have been fully considered and are persuasive. The objection of claims 1,

19, and 26 has been withdrawn.

3.   Applicant's arguments filed July 11, 2008 with respect to claims 14-16 have been

fully considered but they are not persuasive. Applicant asserts that neither Antoine (US

2001/0036274 A1) nor Carlson (US 6,907,062 B2), whether taken alone or in

combination, teach or suggest selecting parameter data *according to at least one of a*

number of used tones and a number of upstream and downstream carriers of an ADSL

modem. Examiner asserts, however, that Antoine in view of Carlson does teach this

element of claim 14. Specifically, Antoine teaches the generation of a pseudo-random

bit sequence of multi-carrier data symbols (i.e. *upstream and downstream carriers*) in a

manner so as to achieve a high randomness (Paragraph 0004). Antoine further

describes how the pseudo-random bit sequence is generated using these multi-carrier

data symbols (Paragraph 0005-0006) between two VDSL transceivers (Figure 1), noting

that the same method can be performed using an Asynchronous Digital Subscriber Line

(ADSL) (Paragraph 0029).

        Therefore, Examiner maintains the rejection of claims 14-16.

DETAILED ACTION

Claim Rejections – 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Antoine (US 2001/0036274 A1) in view of Carlson (US 6,907,062 B2).

6.   **Regarding claim 14,** Antoine discloses *selecting parameter data based on an*

association of the selected parameter data with a reasonable peak-to-average ratio.

Specifically, Antoine discloses a method to generate a pseudo-random sequence of

multi-carrier data symbols in which the peak to average ratio (PAR) is not compromised

in pursuit of producing a highly random sequence of bits (Paragraph 0007, see "...if L

[number of bits in the repetitively generated pseudo-random data sequence of bits]

however is chosen high, the scrambler is not optimized in terms of PAR...solution is not

preferred in multi-carrier transmission systems wherein PAR reduction is a major

concern..."). Antoine discloses the generation of a pseudo-random bit sequence of

multi-carrier data symbols (i.e. *upstream and downstream carriers*) in a manner so as to

achieve a high randomness (Paragraph 0004). Antoine further describes how the

pseudo-random bit sequence is generated using these multi-carrier data symbols

(Paragraph 0005-0006) between two VDSL transceivers (Figure 1), noting that the

same method can be performed using an Asynchronous Digital Subscriber Line (ADSL) (Paragraph 0029).

Antoine does not specifically disclose *generating a pseudo-random bit sequence based on the selected parameter data, whereby the pseudo-random bit sequence can be output to seed generation of a Medley signal in the ADSL modem*.

However, Carlson discloses method of PRBS selection in modem communication in which a PRBS MEDLEY generator is used in ADSL modems (i.e. *for a sequence of Medley symbols* and *PRBS can be output to seed generation of a Medley signal*). The ADSL modem selects one of a set of different PRBS generators appropriate to observations made during training or to parameters that may not be known in advance (Column 3 lines 17-25). Carlson further discloses that ADSL modems operate by making extensive measurements on their operating environment during an elaborate training procedure executed when a pair of modems establishes connection. Depending on those measurements, the modem selects a PRBS generator, from a list of PRBS generators stored in memory, that is the most appropriate to the situation determined by the measurements (Figure 2 steps 201 and 203; Column 4 line 56 - Column 5 line 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Carlson into Antoine in order to allow ADSL modems to choose a PRBS generator based on measurements and observations of their operating environment.

7.   **Regarding claim 15,** Antoine in view of Carlson discloses that *said selected parameter data comprises at least one of a selected initial state or a selected polynomial.* Specifically, Carlson discloses that a PRBS generator is selected based on the determined state of the modem (Figure 2 step 203; Column 4 line 56 - Column 5 line 7) or based on the number of carriers (Figure 6 steps 601, 603, 605, and 607; Column 5 line 65 – Column 6 line 12). Furthermore, Carlson discloses the use of PRBS generator which is based on a primitive polynomial (Column 5 lines 59-62) and the selection of a PRBS sequence based on the specification of one of 2^N-1 possible non-zero initial states for a given PRBS generator (Column 3 lines 28-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Carlson into Antoine in order to allow ADSL modems to choose a PRBS generator based on measurements and observations of their operating environment or based on a determined number of carriers.

8.   **Regarding claim 16,** Antoine in view of Carlson discloses *transmitting the selected parameter data to a receiver.* Specifically, Carlson discloses that the remote modem is informed of the selection of the PRBS generator (Figure 2 label 205, Figure 6 label 609) regardless of whether the operating environment or the number of carriers determines the specific PRBS generator that is used.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Carlson into Antoine in order to allow ADSL modems to choose a PRBS generator based on

measurements and observations of their operating environment or based on a

determined number of carriers.

Allowable Subject Matter

9.   Claims 1, 2, 5-7, 13, and 19-29 are allowed.

10.   The following is a statement of reasons for the indication of allowable subject

matter: the prior art of record does not adequately teach or suggest *a bit sequence*

module that includes a series of unit delay elements having values, and the values

being set based on selected initial state parameter data (Claim 1), *a pseudo-random bit*

sequence generator that has three modes including parameter selection mode,

scramble mode and a combination mode, and wherein said pseudo-random bit

sequence generator is configured to operate at a given time in any one of three modes

(Claim 19), *a pseudo-random bit sequence generator comprising a ITU G.992.3 Medley*

scrambler (Claim 26), and *a scrambler that comprising a series of unit delay elements*

having values according to an initial state and first and second summation unites,

wherein outputs of at least two of said unit delay elements are coupled to said second

summation unit according to an initial polynomial, and said second summation unit

sums the coupled outputs and outputs a first sum signal to said first summation unit

which performs a sum of the first sum and the input periodic bit sequence to obtain the

output pseudo-random bit sequence (Claim 28).

Conclusion

11.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to OTIS L. THOMPSON, JR whose telephone number is

(571)270-1953. The examiner can normally be reached on Monday to Thursday 7:30

am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chirag Shah can be reached on (571)272-3144. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Otis L Thompson, Jr./
Examiner, Art Unit 2619

September 16, 2008

/Chirag G Shah/

Supervisory Patent Examiner, Art Unit 2619